



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,593	09/15/2006	Min-Woo Choi	13654US06P04	9562
7590 Dilworth & Barrese 333 Earle Ovington Blvd. Suite 702 Uniondale, NY 11553		10/28/2008	EXAMINER SMITH, ERIN W	
			ART UNIT 4155	PAPER NUMBER
			MAIL DATE 10/28/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/575,593	<b>Applicant(s)</b> CHOI ET AL.
	<b>Examiner</b> ERIN SMITH	<b>Art Unit</b> 4155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 September 2006.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 September 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. PCT/KR04/01191.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date 9/15/2006 and 8/02/2006.
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Information Disclosure Statement***

The information disclosure statements, IDS, have been reviewed by the examiner.

***Drawings***

The drawings have been approved by the examiner.

***Claim Objections***

1. Claims 1 and 5 objected to because of the following informalities: the unit designation of "pcs" should be "cps" for centipose. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. **Claims 2 and 3 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**
3. Regarding claim 2, it is unclear what "1:8 to 12" means; examiner suggests that it should be "1:8 to 1:12" for clarity.
4. Regarding claim 3, likewise, "1:1.5 to 1.8" should be "1:1.5 to 1:1.8" for clarity.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoll (4,858,976) in view of Zou (US 2002/0113181 A1) and Min-Woo Choi (KR 20-0302081).**

3. **Considering claim 1, Stoll teaches,** “a hat-shaped pressing plate (Figure 1) ...; a disk-type suction plate (2)... and covered with the pressing plate (Figure 1)...wherein the pressing plate (Figure 1) includes a vacuum wall (19)...having an inclined compression surface (Figure 1) directing to the center of the pressing plate (Figure 1) and a co-centric circular saw-toothed type contact protrusion (43) formed on the inner surface of the pressing plate (Figure 1) in such a manner as to be positioned at the inner portion than the vacuum wall (19), wherein the suction plate (2) has a diameter smaller than that of the vacuum wall (19) and includes a central part (Figure 1), an inclined part (Figure 1) and a circumferential part (Figure 1), the circumferential part (Figure 1) having an inclined lift surface (Figure 1) formed on the peripheral edge thereof

and overlapped with the inclined compression surface (Figure 1) of the pressing plate (Figure 1), the inclined lift surface (Figure 1) having a gradually narrowed upper portion and a gradually widened lower portion,...pressing plate made of rigid synthetic resin (Column 5, lines 22-24) and disk-type suction plate made of soft synthetic resin (Column 5, lines 15-21)"

4. Stoll fails to teach "a screw shaft (3), a screw tightening member (31) coupled to a protruding front end of the screw shaft (3), the vacuum wall being made of gel-type polyurethane which is 150 - 250 cps in viscosity and wherein the screw tightening member (31) has a hanger (Figure 1) formed on the upper end thereof. Zou teaches "a screw shaft (3), a screw tightening member (31) coupled to a protruding front end of the screw shaft (3),... wherein the screw tightening member (31) has a hanger (Figure 1) formed on the upper end thereof." Zou fails to teach "the vacuum wall being made of gel-type polyurethane which is 150 - 250 cps in viscosity."

5. Both Stoll and Zou teach of suction cup actuating assemblies. It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the actuating assembly of Stoll for the actuating screw assembly of Zou to provide a sucker structure capable of firmly adhering to a smooth surface as taught by Zou (paragraph 003). Stoll, as modified, fails to teach of polyurethane with a viscosity of 150 – 250 cps. Choi discloses it is known to use polyurethane for suction cups (Page 2, lines 9-12).

6. It would have been obvious for one of ordinary skill in the art at the time the invention was to make the vacuum wall of Stoll of gel type polyurethane a viscosity of 150 – 250 cps to tightly seal and achieve vacuum suction as taught by Choi and it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. **Considering claim 2**, Stoll as modified, fails to teach that that “vacuum wall is made of polyurethane where diol compound having a molecular weight of 4,000 - 6,000 is mixed with methylene-diisocyanate in the ratio of 1:8 to 12.” It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a molecular weight of the.... In the ratio of 1:8 to 1:12, to achieve a desired seal-ability and vacuum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331 and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

8. **Considering claim 3**, Stoll as modified teaches vacuum wall (19) is in the form of a right-angled triangle, but fails to teach where the ratio of the height to the base line is 1: 1.5 to 1.8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the height to base line ratio in the range of 1:1.5 to 1:1.8 to achieve a desired seal-ability and vacuum, as it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. **Considering claim 4**, Stoll as modified, discloses the claimed invention except is four or five times thicker than the circumferential part (Figure 1). It would have been obvious to one

having ordinary skill in the art at the time the invention was made to have the central part of the suction plate four or five times thicker than the circumferential part to achieve a desired sealability and vacuum, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

10. **Considering claim 5**, Stoll teaches, a hat-shaped pressing plate (Figure 1) made of rigid synthetic resin; a disk-type suction plate (2) made of soft synthetic resin and covered with the pressing plate (Figure 1); a screw shaft (3) mounted on the upper end of the center of the suction plate (2) and perforating the center of the pressing plate (Figure 1), wherein the suction plate (2) has a diameter smaller than that of the vacuum wall (19) and includes a central part (21), an inclined part (22) and a circumferential part (23), the circumferential part (23) having an inclined lift surface (3) formed on the peripheral edge thereof and overlapped with the inclined compression surface (Figure 1) of the pressing plate (Figure 1), the inclined lift surface (3) having a gradually narrowed upper portion and a gradually widened lower portion, and wherein the screw tightening member (31) has a grip formed on the upper end thereof.” Stoll fails to teach “a screw tightening member (31) coupled to a protruding front end of the screw shaft (3)” Zou teaches “a screw tightening member (31) coupled to a protruding front end of the screw shaft (3),” Zou fails to teach “... the vacuum wall being made of gel-type polyurethane which is 150 - 250 pcs in viscosity ..., and a co-centric circular saw-toothed type contact protrusion (13) formed on the inner surface of the pressing plate (Figure 1) in such a manner as to be positioned at the inner portion than the vacuum wall...”

11. Choi discloses it is known to use polyurethane for suction cups (Page 2, lines 9-12). It would have been obvious for one of ordinary skill in the art at the time the invention was to make the vacuum wall of Stoll of gel type polyurethane a viscosity of 150 – 250 cps to tightly seal and achieve vacuum suction as taught by Choi and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN SMITH whose telephone number is (571)270-7023. The examiner can normally be reached on Monday to Thursday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on (571)-272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ERIN W. SMITH/

Examiner, Art Unit 4155

/Thu Nguyen/  
Supervisory Patent Examiner, Art Unit 4155